



Seattle, a Climate of Change: Meeting the Kyoto Challenge

Report and Recommendations

**Mayor Nickels' Green Ribbon Commission
On Climate Protection**

March 2006



A Report to the Mayor

Mayor Nickels, thank you for the opportunity to serve on your Green Ribbon Commission on Climate Protection. We applaud your leadership on this issue, which is critical to sustaining quality of life not only in Seattle, but across the planet. It's been an honor to be part of the effort, and we pledge our continued involvement and support.

A year ago you brought us together and gave us a very challenging assignment: to recommend actions for meeting or beating the climate pollution-cutting goals of the international Kyoto Protocol right here in our own community. The recommendations described in this report, if fully and aggressively implemented, will achieve that goal.

Our recommendations are based on careful review of both the major sources of global warming pollution in the Seattle area, and the most promising solutions from around the world. In our judgment, this is a necessary and achievable set of actions that will significantly reduce greenhouse gas emissions in Seattle, and at the same time create cleaner air, jobs and business opportunities, and a healthier environment for all of us.

It's our hope that these recommendations will serve not only Seattle, but the more than 200 mayors and communities from around the country who have answered your call for more local action on global warming by signing onto the U.S. Mayors Climate Protection Agreement. Our community, under your leadership, serves as a model and an inspiration for action in other communities, and in the state and national policy arenas as well.

Never before has the need for this leadership been more urgent. Some experts warn that we may be running out of time, and that serious action is needed now to slow and ultimately reverse global warming.

For us, the delivery of this report to you is the beginning, not the end, of our participation in this initiative. We stand ready to work with you, your staff and the entire community to implement these recommendations, and make Seattle the nation's most climate-friendly city.

We look forward to helping you build the community understanding and support needed to make important policy changes, secure critical funding, and sustain Seattle's climate protection efforts over time. As a first step, each of us will host at least one presentation of this report to our organizations and constituencies before September.

Meeting the Kyoto target here – and, more important, transforming Seattle into the nation's most climate-friendly city – is an extraordinary challenge. But we like our chances. Time and again, this community has rallied to meet such challenges. Seattle's unique mix of eco-intelligence and entrepreneurial zeal, coupled with your leadership, will take us to our target – and beyond.



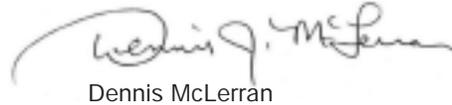
Denis Hayes, Co-Chair



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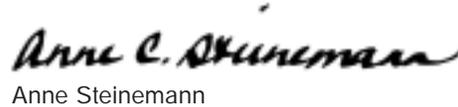
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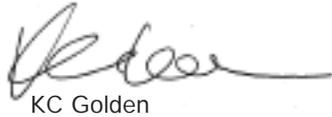
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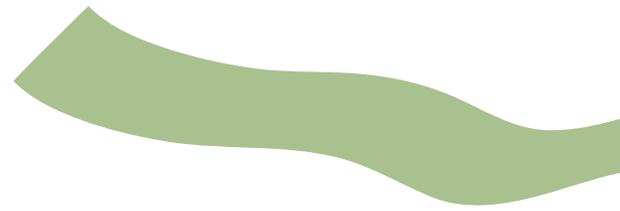
Doug Walker

Mayors of America Deliver

On February 16, 2005 – the day the international Kyoto Protocol went into effect – Seattle Mayor Greg Nickels and ten other mayors challenged their fellow mayors across the country to embrace the central goal of the Protocol: to reduce global warming pollution in their communities by seven percent from 1990 levels by 2012.

The U.S. Mayors' Climate Protection Agreement—a voluntary pact among municipal leaders to both reduce their own climate pollution and to promote strong climate protection policy at the state and federal levels—resulted from this challenge. As this report went to press, 213 U.S. mayors—and counting—have signed the agreement and committed their cities and citizens to the challenge. Together, these mayors represent almost 43 million Americans in 38 states, plus the District of Columbia.

For more information, please visit www.seattle.gov/mayor/climate.



To learn more about the Green Ribbon Commission and its recommendations, please visit: www.seattle.gov/climate



It's Time to Act

The concern about global climate disruption has taken a sharp and alarming turn in recent months. It has shifted from questions such as "Is it real?" and "Is it human-induced?" to "How quickly is it happening?" and "How close are we to the 'tipping point' at which catastrophic consequences are unavoidable?"

Nearly daily, we hear of new scientific evidence of global climate change. One of the starkest assessments, reported by the World Health Organization in 2005, is that human-induced changes in the climate now lead to at least five million cases of illness and more than 150,000 deaths every year – mostly in areas least able to cope with illness induced by flooding and heatwaves.

Here in the Seattle area, we already are experiencing impacts of climate disruption. The Cascade Mountains snowpack on which we rely for drinking water and hydroelectricity is declining dramatically. According to the University of Washington's Climate Impacts Group—one of the nation's premier research institutions on the issue—the average snowpack in the North Cascades is about half of what it was 50 years ago, and we are likely to lose another 50 percent by 2050 if current trends continue.

And that is only the tip of the proverbial—and melting—iceberg. What will wetter winters mean for flooding streets and basements, landslides, and an already strained drainage system? What will hotter summers mean for smog levels that already have come close to exceeding health standards in recent years? What will a warmer Lake Washington and Puget Sound mean for the cherished wild salmon runs that we are spending hundreds of millions of dollars to restore? What will sea-level rise in the Sound mean for the integrity of critical shoreline infrastructure such as the seawall, port, and wastewater treatment facilities?

The City government, led by Seattle City Light's program to achieve "zero net emissions" while producing and delivering electricity to 370,000 commercial and residential customers, has reduced its own contributions to global warming pollution by more than 60 percent below 1990 levels. Many local companies and individuals are taking action, as well. But according to the Puget Sound Clean Air Agency, region-wide emissions increased eight percent between 1990 and 2000. And, within the next 15 years, they are projected to increase by 38 percent.

The good news is that the actions and investments needed to rein in Seattle's climate pollution will at the same time make our community healthier and more livable. For example, reducing diesel use also reduces the region's major source of toxic air pollution. Less driving and more fuel efficient cars means less smog. And, compact, walkable, bike- and transit-friendly urban centers also promote fitness and community-building.

One of the primary obstacles to responsible climate policy is the perception that reducing fossil fuel use will be economically costly. We believe the opposite is true. The road to a more climate-friendly community is paved with economic opportunities ranging from cost-savings for families to new business development for companies. For example, the state's new "clean car" standards are projected to save drivers \$2,500-\$3,000 in fuel costs over the life of the vehicles, while reducing global warming pollution by 25-30 percent per vehicle. Similarly, investing in more energy efficient homes and businesses creates local jobs. And, here in Seattle, new jobs already are being created by climate-friendly businesses engaged in sustainable building design and biodiesel production.

With rising and volatile fossil fuel prices, the climate protection agenda is critically linked to our economic development strategy. And, with growing concerns about geopolitical threats related to fossil fuel dependence, our climate plan will enhance security as well. In short, climate solutions—such as those proposed in this report—are among our most effective strategies for enhancing security, increasing prosperity, and building a healthier community.

The Mayor's Charge

In March 2005, the Mayor assembled this Green Ribbon Commission not as official representatives of our respective organizations, but as a group of community leaders who reflect Seattle's rich diversity of experience and perspective. We accepted our charge to not only engage all of Seattle in significantly reducing local contributions to global warming, but to develop recommendations and ideas that will help accelerate action in other communities and other levels of government.

Our charter directed us to develop recommendations for Seattle to achieve the Kyoto Protocol's recommended target for the U.S. – seven percent reduction of global warming emissions from 1990 levels by 2012. And, our focus was on developing effective strategies and actions that produce meaningful reductions by all of Seattle – the government, households, businesses, community groups and public institutions.

We began with a close examination of the main sources of global warming pollution in Seattle, and a thorough review of the most promising solutions from other cities, states and companies. We created several working groups, bringing in experts from throughout the community on key issues such as energy, transportation, and public education and outreach. We assessed proposed actions using three main criteria:

- potential for reducing global warming pollution;
- overall feasibility;
- and, catalytic potential – that is, the likelihood that the action would produce multiple benefits here in Seattle, and/or accelerate action by other institutions and communities.

In developing our recommendations we studied the problem, scanned the horizon for good ideas, consulted with the best-and-brightest community minds, reviewed the best available information, conducted some of our own feasibility and impact assessment, and then, applied our collective best judgment.

We are confident that the recommendations described in this report are both necessary and doable, and will – if fully implemented – result in greenhouse gas emission reductions that meet or beat the Kyoto Protocol target.

The Kyoto Protocol

The Kyoto Protocol is an international agreement adopted December 1997 in Kyoto, Japan and ratified by 160 countries as of February 2006. The Protocol sets binding emission targets for developed countries that would reduce their emissions an average of 5.2 percent below 1990 levels. It also creates market-based mechanisms that allow emissions trading among participating countries.

Specific reduction targets range from eight percent for the European Union to six percent for Japan. Russia's target is zero percent, while increases of eight percent are allowed for Australia and 10 percent for Iceland. The target for the U.S., the world's largest emitter of global warming pollution, would have been seven percent, but the U.S. is not participating.

For more information, visit <http://unfccc.int/2860.php>

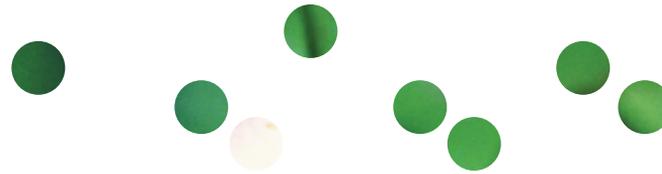
About Offsets

An "offset" is a project that compensates for some or all of an organization's global warming pollution by avoiding or storing an equal amount of emissions outside of its own operations.

Offsets can be a legitimate and cost effective approach to reducing global warming pollution and can provide individuals and organizations a means to take responsibility for their emissions. Offsets are a key component of Kyoto Protocol implementation. Participating countries are allowed to buy and sell emissions credits, which can help produce cost-effective strategies for meeting their respective targets. However, in the United States, where no overall limits on global warming pollution exist, properly accounting for and verifying offsets is challenging. What's more, not all currently available offset projects yield reliable, meaningful reductions in global warming pollution.

One example of positive offsets implementation is Seattle City Light. To reach its goal of zero net greenhouse gas emissions, the utility's first priority was to acquire cost-effective energy conservation and renewable energy, and then to offset a relatively small amount of remaining emissions. And, to select its offset projects, City Light used stringent criteria and subjected the projects to third-party verification.

Our charge was to develop recommendations to meet the Kyoto target of a seven percent reduction below 1990 levels. We believe we will achieve our Kyoto goal by reducing emissions directly in our own community. That is our focus and priority which is why, for now, we decided against including additional offsets in our recommendations. In the future however, use of offsets may become necessary and appropriate as we seek to achieve even more ambitious reductions, and as our state and national leaders adopt comprehensive climate policies that include binding limits on emissions.



Our recommendations focus on actions that will have the greatest impact in reducing global warming pollution in Seattle and our region within the Kyoto Protocol timeframe of 2012. We also make recommendations to leverage our community's leadership and catalyze the strong action on climate protection that is needed at the regional, state and national levels.

While we believe it is critically important for the City government to continue to lead by example and continually reduce its own global warming pollution, our recommendations are focused mainly on the community at-large. The recommendations include both ongoing efforts that we believe must be sustained, and in many cases, significantly expanded or accelerated, and a number of new initiatives that are needed to achieve our goal.

Along with these recommendations, we offer these overarching observations as we move, together, toward implementation:

- It's clear that meeting or beating the Kyoto target will be difficult for a number of reasons. One, the timeframe is short; 2012 is less than six years away. In addition, our electricity supply is already "climate neutral," thanks to Seattle City Light's commitment to zero net greenhouse gas emissions. That puts more of the focus on the complex challenge of reducing motor vehicle emissions. And, it means that success will require a deliberate, sustained, community-wide effort.
- Because our emissions come predominantly from the transportation sector, our climate strategy must be regional in scope. Nowhere is this dynamic more obvious than in the area of motor vehicle emissions. Seattle's government and community are leading the way, but success will ultimately depend on intelligent growth management and public transportation systems at the regional scale.
- While we carefully considered costs and benefits in discussing and agreeing on our recommendations, we did not attempt a full cost benefit analysis. That is a necessary next step which must be considered as these recommendations are reviewed by the City and the community, and translated into an action plan. We believe the cost to our community of not taking additional action dwarfs the price tag of these recommendations. And, we believe the benefits of these actions include not just reduced greenhouse gas emissions, but also a stronger, healthier, more prosperous community. We suggest a close examination of a recent independent study on the costs and benefits of implementing the State of California's ambitious climate action plan, the goals of which are to reduce climate pollution to 2000 levels by 2010 and to 1990 levels by 2020. That study concluded that the emissions reductions necessary to meet California's statewide targets "can be achieved at no net cost to consumers and likely at a net benefit in both 2010 and 2020." This is principally due to cost-savings from increased energy and fuel efficiency.

Counting Kyoto: Our Target for Reducing Seattle's Climate Pollution

The Kyoto Protocol target is to reduce global warming pollution—measured in emissions of carbon dioxide and other "greenhouse gases" that are causing climate disruption—to seven percent below 1990 levels by 2012. To meet this target in Seattle, we estimate that the community must reduce its greenhouse gas emissions by about 683,000 metric tons—the equivalent of taking about 148,000 cars off the roads.

Where does this number come from? Any serious initiative to reduce global warming pollution must begin with a very challenging first step: A greenhouse gas emissions inventory that establishes the baseline against which progress will be measured, and identifies the major sources of pollution that will be the focus of the program. Seattle's inventory of greenhouse gas emissions is indicated in Figure 1. The inventory shows that the global warming pollution in our community—expressed as "carbon dioxide equivalents," the main pollutant—comes primarily from the use of fossil fuels such as gasoline, diesel and natural gas. More than 36 percent comes from gasoline-, diesel- and natural gas- powered motor vehicles, and another eight percent or so is from "non road" diesel-powered vehicles such as ships and construction equipment. About 18 percent comes from natural gas used to heat homes and businesses, and another 20 percent comes from emissions at local airports.

In 1990, Seattle emitted about 6,316,000 metric tons of global warming gases. Our Kyoto target—seven percent below 1990 emissions—is 5,874,000 metric tons.

Meeting the Challenge

The Kyoto Protocol is a framework for international action on climate protection. Applying this framework to a local community is a challenging task, in large part because greenhouse gas emissions – like most other forms of pollution – do not adhere to geographic boundaries or local government jurisdictions. For example, Seattle's electricity is produced outside of the city, so the few emissions associated with that production occur elsewhere. Similarly, cars commuting into and out of Seattle, or traveling through Seattle on interstate highways, produce air and global warming pollution here, even if they are not being fueled in Seattle or owned and driven by a Seattleite. So, where do we draw the lines?

Unfortunately, there is no standard protocol for making these types of decisions and creating a greenhouse gas emissions inventory for a local

community. There are standard protocols for both countries and companies; but creating a local inventory, and calculating a local global warming pollution baseline and reduction target, requires a great deal of professional judgment.

A Sound Approach

Though challenging, we are confident in our approach to establishing the baseline and the target for Seattle's climate protection initiative. To begin, we created a Metrics Sub-Committee consisting of several Green Ribbon Commission members to carefully review the best available data, and, using their best professional judgment, to make decisions. In addition, we consulted with the people and organizations in our community who have the most expertise and experience in creating greenhouse gas emission inventories.

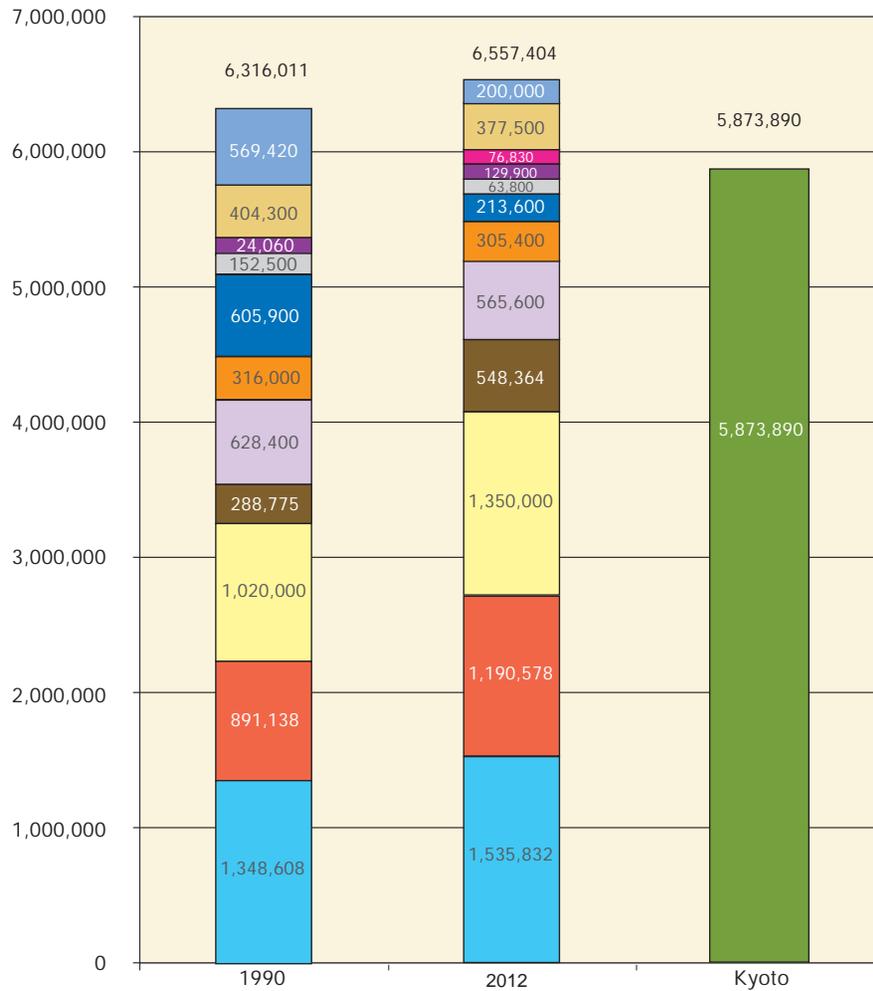
Key decisions that are embedded in the inventory and shown in Figure 1 include the following:

- We used up-to-date information on actual and projected natural gas consumption in Seattle, provided by Puget Sound Energy.
- We obtained current data on vehicle miles traveled in Seattle, provided by the Puget Sound Regional Council. We translated that information into estimated emissions by using U.S. Department of Energy data on vehicle fuel efficiencies and, using best professional judgment, estimated average fleet fuel efficiencies for 2012.
- We included all Seattle City Light emissions resulting from serving retail load because, even though most of City Light's operations are outside of the city, almost all of the electricity they produce is consumed within the city.
- Although it is located outside of the city, we included about 30 percent of the total estimated emissions from Sea-Tac International Airport, based on the percentage of total air travel by Seattle residents and businesses.

It is also important to stress the importance of recycling as a climate protection action. The more products that can be reused or recycled, the less energy used for manufacturing and the less waste that needs to be transported and landfilled. However, counting the energy used to produce products and the benefits of recycling were beyond our capabilities for this report.

Seattle's GHG Emissions and Kyoto Target

Metric Tons CO2 equivalents



Emissions source	1990	2012	
Transportation – gasoline	1,348,608	1,535,832	
Natural gas (Point and non-point)	891,138	1,190,578	
Transportation - airports	1,020,000	1,350,000	
Transportation - diesel	288,775	548,364	
Non - road diesel	628,400	565,600	
Coal	316,000	305,400	
Oil Heat	605,900	213,600	
Closed landfills	152,500	63,800	
Propane heat	66,910	129,900	
Transportation – natural gas	24,060	76,830	
Other categories *	404,300	377,500	
Seattle City Light emissions	569,420	200,000	
Kyoto Target			5,873,890
Total:	6,316,011	6,557,404	
Reductions needed:			683,514

- Kyoto Target
- Seattle City Light emissions
- Other categories*
- Transportation - natural gas
- Propane heat
- Closed landfills
- Oil heat
- Coal
- Non-road diesel
- Transportation - diesel
- Transportation - airports
- Natural gas (Point and non-point)
- Transportation - gasoline

Figure 1

Action Plan 2012: Seattle's Six-Year Effort to Meet or Exceed The Kyoto Protocol Target

Recommendations	Tons GHG Reduction
Reduce Seattle's Dependence on Cars	170,000 tons
1. Significantly Increase the Supply of Frequent, Reliable and Convenient Public Transportation	
2. Significantly Expand Bicycling and Pedestrian Infrastructure	
3. Lead a Regional Partnership to Develop and Implement a Road Pricing System	
4. Implement a New Commercial Parking Tax	
5. Expand Efforts to Create Compact, Green, Urban Neighborhoods	
Increase Fuel Efficiency and Use of Biofuels	200,600 tons
6. Improve the Average Fuel Efficiency of Seattle's Cars and Trucks	
7. Substantially Increase the Use of Biofuels	
8. Significantly Reduce Emissions from Diesel Trucks, Trains and Ships	
Achieve More Efficient and Cleaner Energy for Our Homes and Businesses	316,000 tons
9. Maintain City Light at Zero Net Greenhouse Gas Emissions. Meet Load Growth Through Conservation and Renewable Energy Resources	
10. Substantially Increase Natural Gas Energy Conservation	
11. Strengthen the State Energy Code	
12. Reduce Seattle Steam's Use of Natural Gas	
Build on Seattle's Leadership	Policy Action
13. Continue City of Seattle's Strong Leadership Example	
14. Mobilize the Entire Community	
15. Create the Seattle Climate Partnership	
16. Leverage Regional and State Action for Climate Solutions	
Sustain Our Commitment	Policy Action
17. Direct More Resources to the Challenge	
18. Monitor and Report on Progress	
Subtotal	686,600 tons
Actions Already Underway	
Clean Car Standards	25,000 tons
Appliance Efficiency Standards	9,500 tons
Total	721,100 tons
Target: 7 Percent Below 1990 Levels By 2012	680,000 tons

Our Confidence in Seattle

Why are we so confident that these recommended actions will really meet our Kyoto target? Because those who live and do business here have successfully tackled similar challenges before.

Take water for example. Total water usage in the Seattle area today is less than it was 30 years ago despite a 25 percent increase in population. Most would agree that this is a remarkable achievement. The City's quest to improve water use efficiency succeeded because of a strong and sustained conservation program by Seattle Public Utilities, the Saving Water Partnership (a consortium of 18 Seattle-area water utilities), and their customers. They did it by explaining the true value of clean water; and the cost to all of us and the environment if we didn't use our water resources more efficiently. And they did it through improved plumbing codes, financial incentives and making the business case for more efficient water use. It's no wonder why many of our strategies to tackle climate pollution sound like what leaders and citizens before us did to reduce water use – we learned from them!

Along with similar achievements in recycling and energy efficiency, a strong conservation ethic is something that defines the Seattle community. In fact, it's a matter of civic pride.



Reduce Seattle's Dependence on Cars

GHG Emissions Cut by 170,000 Metric Tons

Only by driving fewer cars and fewer miles can we meet our Kyoto target. But like most American cities, Seattle is car-dependent. Each year, Seattleites drive more than 20 times the distance to the sun—and back—and spend more than an average work week just sitting in traffic. The cost of this is enormous – wasted time, wasted dollars, and the largest source of Seattle's global warming pollution. This must change. We must accelerate and intensify our City's progress in planning, funding and building housing, businesses and infrastructure that encourage alternatives to driving – walking, biking, and convenient public transit. And we need to launch a comprehensive public information campaign that communicates these messages (See Recommendation #14.)

The Commission is recommending a package of actions that, together, will reduce our dependence on passenger vehicles. These actions advance the Mayor's current goals for livable and walkable Seattle neighborhoods and for downtown. Our recommendations also go further; we need to be working as a region to adopt policies, programs and pricing signals that help Seattle – and our neighboring cities – achieve the population density that supports public transit and reduces sprawl. In the end, we'll save money and time, greenhouse gas emissions will be dramatically reduced, and our communities will be more vibrant and greater places to live.



Recommendation #1

Significantly Increase the Supply of Frequent, Reliable and Convenient Public Transportation

Frequent, reliable and convenient public transportation provides a real alternative to passenger vehicles and allows people from all socioeconomic backgrounds to travel more cheaply. Fewer cars means less traffic congestion and less air pollution. And adequate transit is essential to maintain and improve livability as we accommodate the population, housing and job growth projected for Seattle.

While several efforts are underway to improve Seattle's public transportation system, these efforts need to be significantly accelerated. For example, the Seattle Transit Plan identifies a network of corridors where transit will run at least every 15 minutes, 18 hours a day seven days a week in both directions and be given priority to reduce traffic congestion. However, funding is not secured for either the capital or service improvements needed to reach full implementation by 2030. Transit is the keystone for other actions; changes in parking policies and road pricing cannot be fully implemented until Seattleites have better transportation choices. For these reasons, the Commission is recommending substantial increases to the supply of Seattle's public transportation, including collaborating with other agencies and the state to fully fund the Seattle Transit Plan.

The myriad benefits of public transportation are well recognized in numerous documents and forums. In addition to reducing the need for cars, good public transit is, for many, an economic necessity, opening up more opportunities for those who have no other means of getting to a job, day care or recreation.

Actions

- The City, King County Metro, and Sound Transit should work together to increase transit efficiency, such as moving buses and trains more frequently and more reliably through the highest use areas.
- The City should allocate a set percentage of the budget for capital transportation projects as a set-aside to fund transit speed and

reliability improvements. The City should determine a long-term funding strategy to increase transit frequency which may include the sales tax, a new City authority, a local funding package, tolls, the motor vehicle excise tax, bus fare increases, grants, Business Improvement Area funds, and/or impacts fees.

- The City should develop a proposal for transit corridors that serve the Ballard, West Seattle and University District markets that mesh with neighborhood plans and discourage automobile use.
- The City should support Sound Transit's efforts to establish light rail to Northgate.
- The City should continue to coordinate with Sound Transit to ensure that all future light rail stations are fully transit-oriented, mesh with neighborhood plans, and support reductions in greenhouse gas emissions including implementing the adopted station area plans.

Recommendation #2

Significantly Expand Bicycling and Pedestrian Infrastructure

In Seattle's increasingly dense urban environment, the potential for biking and walking to replace short car trips can greatly reduce greenhouse gas emissions. Since approximately 75 percent of non-work trips are close to home, biking and walking are realistic options for these trips. Already, nearly ten percent of work trips in Seattle are by bicycle or on foot. In addition, transit riders frequently bike or walk, so supporting these modes of transportation helps boost transit ridership and extends its reach. Expanding infrastructure requires investments in well-marked, safe routes (including striped bike lanes, sidewalks, and crossings), bicycle parking, and showers and lockers.

Making bicycling and walking viable options has the additional benefit of helping households reduce the need for and the costs of owning and maintaining one or more cars. And, the expanded pedestrian and biking infrastructure we are recommending will also improve health, fitness and safety.



Actions

- The City should complete and fully implement the Seattle Bicycle Master Plan and improve the on-street bicycle network by doubling the number of striped bike lanes (currently 1.5 percent of all arterials compared to Portland's 25 percent) and by more clearly marking bike lanes. The City should continue its steady progress toward completing the urban bike trail system within ten years.
- The City should improve pedestrian crossings at priority locations such as schools, high-density commercial areas and at transit stops.
- The City should accelerate sidewalk construction, maintenance, repair and replacement as an important way to connect people more effectively to transit.
- The City should adopt zoning code changes that increase the amount of bike parking as well as develop incentives and/or regulations for new commercial construction to include bicycle facilities such as bike racks, storage lockers and showers.
- The City should allocate a set percentage of the capital improvement budget for major transportation projects to fund bicycle and pedestrian projects.
- The City should develop its first Pedestrian Master Plan to create a comprehensive network of routes and trails that make walking easy and safe.

Recommendation #3 Lead a Regional Partnership to Develop and Implement a Road Pricing System

Charging drivers "user fees" based on distance or time of day is a potentially powerful tool for reducing traffic congestion, pollution, and encouraging the use of public transportation. In addition, road pricing provides a revenue source to address such needs as increased transit and road maintenance. Road pricing systems vary and include cordon charges, collected upon entrance into a city's core; highway tolling, which charges drivers on particular roads; and "high occupancy toll"

or "HOT" lanes that charge single occupant drivers fees based on the level of congestion. While a specific road pricing system for Seattle has yet to be proposed, a coordinated system in the greater Seattle area has potential for significantly reducing traffic and its contributions to global warming pollution. The Washington State Department of Transportation has already conducted an analysis of road tolling in the Seattle area and among the findings was that tolling the floating bridges would result in increased carpooling and transit ridership of between three and ten percent.

Road pricing can yield substantial reductions in greenhouse gas emissions, faster travel, and safer and less congested downtowns. In Trondheim, Norway, inbound traffic declined by ten percent during toll periods while non-toll period traffic increased by nine percent. Weekday bus travel increased by seven percent.

Actions

- The City, working with the Washington State Department of Transportation (WSDOT), should perform an analysis of regional tolling legal issues, costs, barriers, implementation strategies, operations, impacts on freight mobility, financing, and, by the end of 2007, develop recommendations and strategies to implement a regional tolling system.
- The City should coordinate and collaborate with the business community, neighboring local governments, WSDOT, the Port of Seattle, the Puget Sound Regional Council, the Puget Sound Clean Air Agency and other agencies to raise awareness and support for regional tolling and to determine which system or combination of systems is best for Seattle and the region.
- The City should work with WSDOT to ensure that a portion of toll revenue provides funding for transit service and that the program's costs and benefits are fairly distributed.



Recommendation #4

Implement a New Commercial Parking Tax

Compared with other out-of-pocket expenses, parking fees are found to have a greater effect on vehicle trips, typically by a factor of 1.5 to 2.0. For example, a \$1.00 per trip parking charge is likely to cause the same reduction in vehicle travel as a fuel price increase averaging \$1.50 to \$2.00 per trip. Cities in Washington already have the authority to impose a commercial parking tax; the resulting revenue is required to be used for transportation improvements. While adequate transportation choices should be in place before implementing a new parking tax, it can likewise provide needed revenue for additional improvements to the transit, walking, and bicycling network.

The analysis completed for this report indicated that a ten percent increase in the cost of parking, combined with other strategies such as tolling, would have a substantial influence in reducing the number of vehicles and miles being driven in Seattle – reducing emissions and encouraging increased transit use, walking and biking.

Actions

- The City should work with the Downtown Seattle Association, commercial parking operators and businesses to assess the local and regional economic impacts of a new parking tax and subsequently develop a specific proposal for a tax of at least 10 percent for Seattle in 2006.
- The City should work with the Downtown Seattle Association and parking operators to create more hourly parking for shoppers equivalent to parking meter rates. This will lessen the impact of a parking tax on Seattle's retail businesses.

Recommendation #5

Expand Efforts to Create Compact, Green, Urban Neighborhoods and Business Districts

Compact, livable urban neighborhoods – neighborhoods in which more and more people and businesses choose to be – are critical to the success of the regional "smart growth" strategy. And that strategy is critical to the success of our climate protection efforts.

Seattle has made great strides in recent years, including major initiatives to increase housing, jobs, walkability and livability in appropriate locations throughout the city – downtown, South Lake Union, Northgate, many of the city's neighborhood business districts and around the new light rail stations. We must continue and intensify this work.

Recent studies in the Seattle area indicate that residents of the most compact areas drive about one quarter less than those of suburban areas. Increased density—especially the combination of housing, retail, entertainment, and employment—translate into increased walking. Walking more has direct and measurable effects on health and helps counter the estimated 15 percent of all deaths in King County from obesity.

Compact land use increases the profile and activity of local businesses and the local economy. Likewise, a corresponding reduction in driving frees up additional time to spend with family, neighbors and friends.

Green and Growing

Seattle's land use, economic development, transportation and urban design policies are all intended to draw people in – to increase population density, thereby protecting valuable remaining open space and forested areas from development. We are delighted that those policies are working as increased urban density is one of the most effective long-term climate solutions available today. For example, New York City, not generally cited as a model of sustainability, uses less electricity and gasoline per capita than any other major U.S. city. The benefits of increased density don't stop there, either. Infrastructure costs are almost always reduced as sprawl is reduced. And, on a more personal note, people who live in cities tend to be more physically fit because they walk more.

So, even while Seattle continues to prosper and grow, it is impressive that we can meet our Kyoto target and reduce total greenhouse gas emissions to seven percent below 1990 levels. It is also worth celebrating that we will not only reduce emissions within Seattle, but our "smart growth" policies are helping to displace or prevent significant emissions outside city boundaries.

In the future, even with a strong and successful set of climate protection actions in place, Seattle may experience some growth in greenhouse gas emissions because of increasing population, jobs and new housing. Seattle's contributions to climate protection, like many other cities that are consciously planning and building to attract growth and reduce sprawl, will be recognized for their value well beyond its own city limits.

With an additional 47,000 new residents and 84,000 new jobs projected for the next 20 years, Seattle is poised to take a substantial amount of regional growth. While this greatly reduces sprawl-induced greenhouse gas emissions for the greater region, it poses a challenge to the City for reducing emissions while increasing the population of "emitters."

Actions

- The City should adopt zoning policies and redevelopment strategies that make Seattle's urban centers, urban villages and neighborhood business districts more pedestrian friendly, bolster economic development and increase transportation choices, particularly in areas well served by transit.
- The City should develop and implement parking regulations that not only reduce or eliminate minimum parking requirements for new development but also establish a maximum amount of allowed parking spaces.
- The City should adopt downtown zoning code changes that allow increased height and density, promote more housing - including affordable housing - encourage walking and use of public transportation and discourage car use.
- The City should continue its work with the Downtown Transportation Alliance to develop and implement transportation strategies that sustain downtown Seattle's economic vitality including approaches that encourage walking, biking and use of public transportation. As resources allow, the Alliance should expand its mission to address efficient freight deliveries and movements.



Increase Fuel Efficiency and Use of Biofuels

Cars, trucks, boats, ships, vans, buses, motorcycles, trains. By 2012, all these modes of moving people and goods will be burning more than 750,000 gallons of gas and diesel every day in Seattle if current trends continue. Not only is this fuel use a major source of global warming pollution, it is also the main source of Seattle's air pollution: summer smog, high rates of air toxics due to diesel emissions and increasing rates of asthma. In addition, the cost of all that fuel represents a dramatic drain on our local economy with the vast majority of the dollars flowing outside the region.

Even as we reduce our dependence on cars, all the modes of transportation will still be with us for the foreseeable future. Our economy and our quality of life depend on them. Our challenge is to make them as fuel efficient as possible, and to displace as much of the fossil fuel use with more climate friendly alternatives such as biofuels or electricity.

Recommendation #6 **Improve the Average Fuel Efficiency of Seattle's Cars and Trucks**

GHG Emissions Cut by 35,600 Metric Tons

Locally, regionally and nationally we must improve the fuel efficiency of our cars and trucks. In Seattle, the 400,000 registered vehicles are the single largest source of greenhouse gas emissions. The problem is only made worse by the fact that the average fuel economy of passenger vehicles is lower today than it was in 1987, thanks to heavier vehicles, more horsepower and more people driving SUVs and trucks.

Fortunately, in 2005 Washington joined a growing number of states that have adopted California's "clean car" standards and, as of 2009, new cars sold in our state will be required to reduce tailpipe emissions, including global warming pollutants. Clearly, the highest priority is for Congress to substantially improve the federal fuel efficiency standards. But there is more that Seattle can and should do to get more miles out of a gallon of fuel. This will not only reduce global warming pollution, but also improve air quality, public health, and quality of life and save money. And there is increased recognition that reducing our use of oil is a national security imperative.

Actions

- The City should lead a regional partnership and create a targeted and comprehensive education and awareness campaign focused on fuel efficiency and less driving. This campaign should be a major component of the community mobilization initiative and the Seattle Climate Partnership (see Recommendations #14 and #15). A sustained education and awareness building campaign that promotes reduced driving as well as proper tire inflation, engine maintenance, anti-idling and smart driving techniques can cut emissions by 19,750 metric tons by 2012.
- The City, the Port of Seattle, King County and taxi companies should agree on a better regional approach to regulating taxis to reduce the amount of "deadheading." ("Deadheading" is when the different agencies restrict taxi licenses to either deliver or pick up passengers from certain sites, such as the airport; one part of the round trip is completed without passengers.) Seattle should create an incentive for taxi drivers to switch from old cars that get 12 miles/gallon to fuel efficient hybrids – which are already in use in Vancouver, B.C. and New York city. With increased density in Seattle, the use of taxis is likely to increase – all the more reason to implement these actions which are projected to cut GHG emissions by at least 15,000 tons.

- The City and major employers (see Recommendation #15) should implement measures that increase the use of car sharing programs such as Flexcar and Zipcar. Car sharing companies generally have well maintained, high fuel efficiency cars in their fleet; increased use of them could reduce emissions by an estimated 900 metric tons.

Recommendation #7 Substantially Increase the Use of Biofuels

GHG Emissions Cut by 165,000 Metric Tons

One very promising solution is to maximize the use of biofuels – fuels that are produced from plant material rather than fossil fuels and that can be grown here in the Northwest. Seattle is already a national leader in using biodiesel and supporting the burgeoning biofuel industry.

Biofuels reduce greenhouse gas emissions because they replace the use of gasoline and diesel. It is projected that by 2012, use of B20 (20 percent biodiesel and 80 percent diesel) will cut GHG emissions by 132,000 tons as B20 becomes commonly used by trucks, buses, construction equipment and to a lesser extent, boats and ferries. Adding 10 percent ethanol to Seattle's gasoline stock (called E10) will cut emissions by 33,000 metric tons. And these changes don't require any new investment in new vehicles or technologies – these fuels work in today's trucks and cars. We believe the community can move rapidly toward significantly increased biofuels use. New state and federal tax credits provide incentives for farmers, refiners and consumers; in Seattle demand for biodiesel already outstrips supply, and most recently, new state legislation mandates that biofuels will be incorporated into Washington State's fuel supply starting in 2008.

Other benefits that biofuels provide include:

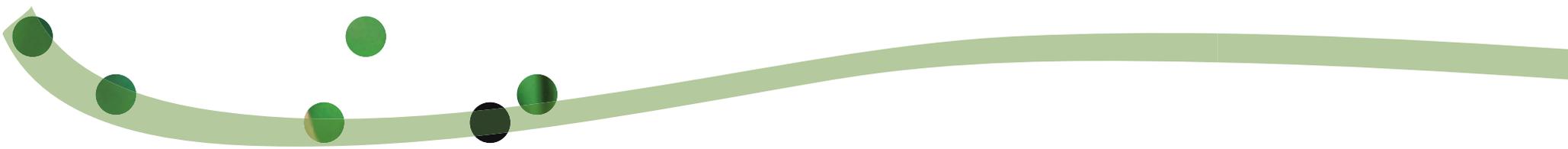
- E85, consisting of 85 percent cellulose ethanol and 15 percent gasoline, cuts GHG emissions per gallon by as much as 64 percent

compared to gasoline. Although using E85 requires specially designed "flex-fuel" vehicles, these cars and trucks are already on the market and cost no more than their standard counterparts. Further, in the immediate future, the primary source of cellulose ethanol is agricultural wastes – a new market for residues from wheat and grass crops that instead of being burned can be transformed into ethanol.

- Biodiesel and ethanol are renewable, domestically produced fuels that create new economic opportunities for our region's farmers and a new local production and distribution industry. The more we grow the local biofuels industry, the less we export dollars.
- Biodiesel and ethanol are biodegradable and non-toxic and produce substantially fewer harmful emissions. Displacing fossil fuels with locally grown, renewable resources is better for our air quality and our public health.

Actions

- A major component of the Community Mobilization program (Recommendation #14) and the Seattle Climate Partnership (Recommendation #15) should focus on promoting biofuels to all sectors of our economy, and particularly freight handling and trucking (Recommendation #8).
- In partnership with the Clean Air Agency, the Port of Seattle, and the Clean Cities Coalition, the City should identify all major diesel fleets in the Seattle area and implement a targeted outreach program. The same partnership should closely align itself with economic development interests to actively support the biofuels industry in Washington.
- The City should work to attract potential biodiesel refiners and vendors to Seattle by helping identify appropriate sites, designating a single point of contact for permit issues, and addressing any fire code issues associated with biodiesel.
- The City and the Port of Seattle should require that contractors use biodiesel (B20) for large projects.
- The City should consider incentives for developers who use biofuels in their projects.



Recommendation #8

Significantly Reduce Emissions from Diesel Trucks, Trains and Ships

With the largest economy in the Pacific Northwest, a major share of Seattle's climate pollution comes from the freight industry – trucks, diesel powered trains, and ships transporting goods to and from Seattle. Seattle is home to the eighth largest seaport in the country and in 2005, the Port of Seattle was the fastest growing container port in North America. Our economic vitality depends on continuing to build a thriving international trade – yet with increasing trade activity comes growth in diesel emissions. And, not only does Seattle already have one of the highest rates of air toxics in the country – mostly caused by diesel emissions – but recent research has established that black soot caused by diesel emissions is adding to global warming by increasing the melting rate of glaciers and snowfields.¹ It is clear that diesel emission reductions must be a major consideration in growth management, transportation and economic development planning. The payoff will be big – reduced climate pollution, reduced air toxics and improved public health.

Actions

- As the cruise ship industry grows, the Port of Seattle and Seattle City Light should develop plans that locate and provide clean electric power, reducing dependence on diesel generators. The avoided emissions can be substantial. Princess Cruise Line is already using shore power which avoids about 1400 tons of climate pollution per year. Holland America Lines plans to use shore power in time for the 2006 cruise season.
- Seattle City Light, the Puget Sound Clean Air Agency and the Port of Seattle should develop a long term strategy for providing shore power to selected container ship berths.

- The Seattle Department of Transportation, the Washington State Department of Transportation and the Port of Seattle should collaborate on a plan to improve the efficiency of key truck corridors, including:
 - a demonstration program that prioritizes freight movement over other traffic;
 - expanded implementation of "Intelligent Transportation Systems" – wireless and wired communications-based information technologies that reduce congestion and improve safety;
 - spot investments on selected Port arterial connector routes to enhance Port truck operations and reduce delay.
- The City, the Clean Air Agency and the Port of Seattle should seek adjustments to the Puget Sound Regional Council's "Congestion Mitigation and Air Quality" funding criteria so that projects that have significant climate benefits score higher.
- The Puget Sound Clean Air Agency, the Port of Seattle, and marine and rail terminal operators should partner on plans and programs to retrofit equipment to reduce diesel emissions and reduce unnecessary idling of diesel engines.
- The Clean Air Agency and Washington State Ferries should make it a priority to resolve the technical issues associated with the use of biodiesel in ferries so that the ferry system can resume its use.

¹ Efficacy of Climate Forcings; Hanson, Sato, *et al.*, *Journal of Geophysical Research*, Vol. 110, D18104, doi: 10.1029/2005JDD005776, 2005.

The Business Case for Climate Solutions

Saving energy saves money. In 1999, the City of Seattle set a target of reducing its fleet fuel use by five percent. By 2005, overall fleet fuel use was down by seven percent, saving more than \$300,000 a year for the City.

With the help of a City Light rebate, the Kelly-Moore Paint Company upgraded its warehouse lighting to produce better quality light and improve energy efficiency – while cutting its electric bill in half. The simple payback for the customer took just 1.4 years.

At Lafarge Corporation's Seattle plant, a total energy conservation investment of \$750,000 produced annual energy cost savings of \$161,250, reduced operations and management costs by \$27,500 and substantially reduced its air pollution emissions. The energy savings were also a good investment for Seattle City Light which made the project possible by providing a \$575,000 incentive.

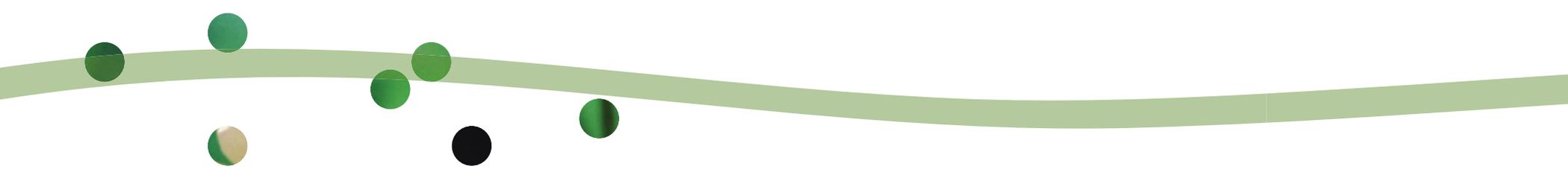


More Efficient and Cleaner Energy for Our Homes and Businesses

Energy efficiency—wasting less by using energy more efficiently—is hands down our best energy option. It's cheaper and cleaner than any alternative. Here in Seattle, we have demonstrated persuasively that energy efficiency benefits consumers, utilities, business competitiveness, and the environment. And with new technologies and changing economics, there are many more opportunities to make our homes, businesses, industries, and public institutions more energy efficient.

Our electric utility, Seattle City Light, is a leader in energy conservation and the first and only major utility in the country to achieve zero net greenhouse gas emissions. But saving electricity remains important both environmentally and economically. Seattle is part of an interconnected Western power grid, in which efficiency anywhere helps reduce pressure for greater fossil fuel consumption. Using power more efficiently helps us hone our "renewable edge," squeezing more work out of existing power supplies and reducing the need for expensive energy infrastructure. And, because efficiency is the cheapest energy resource, it will make sense as long as demand continues to grow anywhere in the West.

Natural gas is a growing source of energy use in Seattle homes and businesses and the second fastest growing source of climate pollution. Using natural gas more efficiently and, where feasible, replacing it with non-fossil fuel alternatives produces real reductions in climate pollution. With growing pressure on natural gas supplies and prices, reducing demand helps to control the cost of heating our homes. Historically, efficiency investments that save electricity have outpaced those that save natural gas. The potential savings in the natural gas sector are enormous—and more economically attractive with every increase in gas prices.



Recommendation #9

Maintain Seattle City Light at Zero Net Greenhouse Gas Emissions and Meet Load Growth Through Conservation and Renewable Energy Resources

GHG Emissions Cut by 200,000 Metric Tons

In 2000, the Mayor and City Council set two major policy goals for Seattle City Light - meet all new electrical demand with cost-effective conservation and renewable energy resources and achieve zero net greenhouse gas emissions. As of 2005, Seattle City Light is meeting both these goals. Maintaining these two City Light policies is the most important climate protection action the City can take. Seattle has a low baseline of greenhouse gas emissions because clean hydropower produces most of our electricity. But even with all green power, the utility still produces some emissions (its fleet and building operations are two examples). To be at zero net greenhouse gas emissions, the utility mitigates for all greenhouse gas emissions it is responsible for by buying offsets; in 2004 and 2005, City Light paid less than \$2/per year per City Light rate payer for offsets through a variety of projects, such as supporting biodiesel in Seattle area fleets and contracting with DuPont Fluorochemicals to install a technology that substantially cut greenhouse gas emissions. Maintaining these policies avoids 200,000 metric tons of greenhouse gas emissions being added to the atmosphere. The policies also underscore the City's leadership and credibility – and demonstrate that making big cuts in greenhouse gas emissions is possible.

Actions

- City Light's Integrated Resource Plan, launched in 2005, will set future conservation targets. Future potential renewable resource generation, such as wind contracts, will also be evaluated. Seattle City Light should continue to use a mix of aggressive conservation, renewable energy production and purchases and carbon offsets to achieve zero net greenhouse gas emissions.
- City Light's conservation programs should be highlighted in the Community Mobilization effort (see Recommendation #14)

as well as integrated into all of the City's sustainable building and economic development outreach and communications.

Recommendation #10

Substantially Increase Natural Gas Energy Conservation

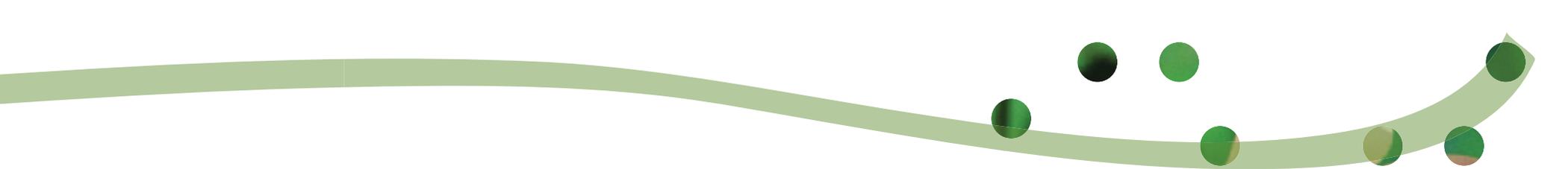
GHG Emissions Cut by 66,000 Metric Tons

Natural gas is a cleaner burning fuel but does add to climate pollution. Increasing the pace of natural gas energy efficiency in all sectors in Seattle is a priority. Puget Sound Energy (PSE) is the gas utility serving all of Seattle. The utility, through its integrated resource planning process, is setting increasingly aggressive energy efficiency targets for all of its customers and helps pay for conservation measures that are cost effective to the utility. Because PSE has less experience in natural gas conservation than its electric conservation program, it has chosen a conservative estimate of how much conservation it can achieve by 2012. The target we include in our recommendation is higher than PSE's, but we believe is achievable through the action steps we include below.

By increasing natural gas conservation in Seattle, not only will we reduce global warming pollution, we will also help avoid the need for building more costly power plants in the future. We also add to a stronger economy – increased energy efficiency reduces consumer energy bills, keeping those dollars in our community.

Actions

- The City should expand its Green Building Program to provide increased targeted technical assistance to the building industry, improving integrated building design and energy efficiency in both new construction and building renovations.
- Puget Sound Energy should increase its natural gas conservation efforts.
- Seattle City Light and Puget Sound Energy should collaborate in delivering conservation services to shared customers. Additional collaboration has the potential to increase energy conservation



savings for both programs. This should include a strategy to specifically reach underserved populations, public institutions and charitable organizations that have fewer opportunities to invest in conservation.

- The City and the Building Owners and Managers Association (BOMA) should partner to help accelerate increased energy efficiency in building operations.
- The Community Mobilization effort (see Recommendation #14) should include a strong focus on energy efficiency, including promoting recent federal tax credits for home owners and businesses who invest in conservation.

Recommendation #11 Strengthen the State Residential Energy Code

GHG reductions not estimated

The state residential energy code – which governs single family housing, apartments, condominiums, and hotel and motel guestrooms – is being updated and revised by the State Building Code Council. That process happens only every three years. It is essential that it fully incorporates the latest improvements in energy efficiency technology that make sense for our region and increases the efficiency of new housing units in our community and state.

Seattle's efforts to help curb sprawl are one of the most effective, long term strategies to slow our region's contributions to global warming pollution. But because Seattle is taking on more growth, it both increases our challenge of meeting the Kyoto target and underlines the importance of ensuring that all the new housing built to meet that growth is as energy efficient as possible.

Making housing energy efficient when it's constructed is far more cost effective than remodeling later. And, when cost effective energy code changes are not adopted, utilities and their ratepayers ultimately pay more either for energy conservation retrofits or for a new source of energy. Additionally, energy codes "lock-in" energy efficiency at the time of construction and contribute to affordable housing by providing

for lower energy bills for occupants. And, finally, residential energy code improvements apply statewide making an even bigger impact on reducing GHG emissions.

Action

- The City should exert its expertise and influence to ensure that the Washington State Building Code Council 2006 energy code revision process incorporates improved energy efficiency measures for both natural gas and electricity.

Recommendation #12 Reduce Seattle Steam's Use of Natural Gas

GHG Emissions Cut by 50,000 Metric Tons

Seattle Steam Company supplies steam for heating and hot water to 175 downtown Seattle customers. By converting one natural gas boiler to using alternative fuels such as biofuels or clean urban wood waste (such as wood waste comprised of pallets, crate materials and similar products) it is estimated that the net green house gas reductions would be approximately 50,000 tons a year.² Assuming that Seattle Steam takes all other actions necessary to insure that such a conversion is a good fit for downtown Seattle (for example, minimizing noise and dust associated with the daily delivery of the urban wood waste) we want Seattle Steam to pursue plans to reduce its use of natural gas.

Action

- Once Seattle Steam obtains all needed regulatory approvals, the City and the Clean Air Agency should work together to assist the company as it moves to implement use of biofuels or biomass.

² Intergovernmental Panel on Climate Change Guidelines generally state that there are zero net emissions from burning wood waste; in essence, because the natural cycle of vegetation is to absorb CO₂ when growing and emit CO₂ when decaying, burning vegetation only accelerates this process as opposed to being a source of CO₂ emissions.



Build on Seattle's Leadership

One of the most important steps the Seattle community can take to stop climate disruption is to continue leading by example. Local action produces local improvements and opportunities, and yields benefits well beyond our own borders. By demonstrating that we can significantly reduce global warming pollution and at the same time improve local quality of life and economic vitality, we create models and success stories that will inspire others to act.

Still, no matter how successful we are here at home, we can't do it alone. Greenhouse gas emissions in Seattle are a small fraction of the total global warming pollution problem. We need strong state and national action as well. This includes a legal limit on total emissions, and a market-based trading system that allows emitters to work together to find cost-effective reductions to achieve the limit. The rest of the world's developed nations—and some U.S. states—are already moving in that direction. Our community and our state need to position themselves for success in the low-carbon, clean energy economies that will develop as we reduce our dependence on fossil fuels.

Recommendation #13 **Continue City of Seattle's Strong Leadership Example**

While this report focuses mostly on community-based action to reduce global warming pollution, Seattle's City government must continue its strong leadership role. In 2005, Seattle City Light became the first major U.S. electric utility to achieve "no net emissions" of greenhouse gases. This initiative, along with a host of other City programs such

as energy conservation, waste reduction and recycling, green fleet management, and green building, already make Seattle a leader in combating global warming. Few cities can claim so much progress on climate protection as Seattle. This leadership creates the experience, examples, and credibility needed to encourage similar action throughout the Seattle community and beyond and thus underlines the importance of the continued leadership of the City of Seattle.

We applaud the Mayor's strong leadership on climate protection through his role at the U.S. Conference of Mayors, and by participating in key gatherings of regional and national municipal leaders and strongly urge him to continue in that role.

Actions

The City should develop a Seattle Climate Action Plan by September 2006. The Plan should include a detailed implementation strategy, based on the Commission's recommendations and input from both the community and key City departments. The Mayor should consider the following new actions to further reduce the City's own greenhouse gas emissions:

- Direct all large operating departments to develop global warming pollution reduction targets and action plans.
- Purchase only "80-plus" computers with super-efficient power supplies.
- Fully mitigate all business-related air travel by City employees by purchasing emissions offset projects.
- Make reduced greenhouse gas emissions a criterion for City purchasing and contracting decisions.

- Adopt and implement a "no idling" rule for diesel trucks parked on City property.
- Actively promote neighborhood-based climate protection efforts through the Neighborhood Matching Fund Program.
- Improve the City's commute-trip reduction program by reducing employees' single-occupant vehicle trips to non-downtown locations.
- Appoint a Climate Protection Coordinator to help City departments implement Seattle's Climate Action Plan, such as identifying and pursuing energy efficiency and waste reduction strategies.
- The Climate Action Plan should also include a strategy for integrating projected climate impacts into the City's resource and infrastructure planning (i.e., adaptation).
- The City should provide adequate funding and resources to develop and implement the Seattle Climate Action Plan. In addition, resources are necessary for the City to sustain its role as both a leader and partner in facilitating the implementation of the recommendations in this report.

Recommendation #14 Mobilize the Entire Community

Most of the global warming pollution in Seattle comes from everyday actions by the people, households, businesses and other institutions who constitute our community. At the top of the list is fuel consumption to heat our homes and businesses, and to transport ourselves along with our goods and services from one place to another. Consequently, reducing this pollution to Kyoto Protocol levels and beyond will require the ultimate community effort. Every resident, household, business and institution in Seattle must do their part.

The Commission recommends an intensive, sustained campaign to inform the community about both the challenges of climate disruption and the opportunities inherent in climate solutions and to inspire action by every individual, household and business in Seattle. The goal is to create the same conservation ethic for climate protection that we have

for recycling and energy and water, and to make climate-friendly lifestyles a matter of community pride and identity.

Actions

- The Mayor and the Green Ribbon Commission should host a series of community and business events to present these recommendations, inspire near-term action, and gather input into the Seattle Climate Action Plan (see Recommendation #13). Each Commission member commits to hosting an event for her or his organization and/or constituency.
- The City, along with the Puget Sound Clean Air Agency, Climate Solutions, and the Seattle Climate Partnership (see Recommendation #15) should lead a regional partnership to develop, fund and implement a comprehensive community outreach campaign to inform and inspire action on climate protection. The target audiences for the campaign should be vehicle operators, energy consumers and employers. Based on the scope and need, we estimate that the campaign will cost approximately \$1.5 million. This effort should begin immediately, and should be based on: research to increase our understanding about current levels of awareness and attitudes; review of successful outreach campaigns such as those discouraging smoking and promoting recycling and the use of seatbelts; and an inventory of existing related efforts, such as those by Seattle Public Utilities, Seattle City Light, Puget Sound Energy, and the Clean Air Agency.

Recommendation #15 Create the Seattle Climate Partnership

Employers are in a unique and powerful position to reduce global warming pollution – not only from their own operations, but also from their suppliers, customers and workers. Since most of this pollution comes from the use of fossil fuels such as gasoline, diesel and natural gas, employers can make a huge difference by making climate-friendly



decisions about how they use energy in their buildings, how they transport goods and services, and how they influence their employees' transportation choices.

The Seattle Climate Partnership will be modeled after the highly successful U.S. Mayors Climate Protection Agreement; employers participating in the Partnership will commit to reducing their own greenhouse gas emissions and helping achieve the community-wide target.

A strong collaboration among Seattle-area employers will help achieve our climate protection goals by increasing the number of public and private institutions in Seattle that are taking action to reduce global warming pollution. This will create a dynamic network of institutions that support each other's success by sharing information, ideas and resources. This cooperative approach will reduce the overall costs of taking action, while at the same time bolstering economic opportunities in emerging business sectors such as clean energy, clean fuels, and green building. In addition, Partners can form coalitions to promote strong climate protection policies and programs at the regional, state and federal levels.

Actions

The City should:

- Craft the Seattle Climate Partnership Agreement describing the specific actions to which participating employers are committing.
- Recruit the 50 largest employers in the Seattle region to join the Partnership by the end of 2007.
- Work with appropriate government, private and nonprofit organizations to provide trainings/workshops and resources to members of the Partnership on how to reduce their greenhouse gas emissions.
- Develop a technical assistance program to help members of the Partnership follow through on their commitments.

Recommendation #16 Leverage Regional and State Action for Climate Solutions

When it comes to climate solutions, no community is an island. Seattle has accomplished a great deal in recent years, and will build on that success through the implementation of these recommendations. But, on its own, it will never be enough. A successful climate protection strategy requires strong partnerships with other communities in the region, and with the state and federal governments, as well. Many of the most appropriate and cost-effective solutions – increasing public transportation systems, improving fuel efficiency standards, and reducing diesel emissions from cruise and cargo ships to name just three examples – are best developed and implemented at those larger scales.

The Commission believes that Seattle – as the largest city and economic center in the state with an excellent track record and a strong foundation of experience and success on which to build – is well-positioned to promote these broader solutions. We believe the community can and must work with key local, regional, state and national partners to catalyze strong action for climate solutions beyond the city's borders. This action will leverage Seattle's considerable past, present and future investments in climate protection by achieving benefits not only for our own community, but for the region and state as well. In addition, regional and state-wide partnerships on climate protection will reduce the total costs of action, support emerging clean technology industries, and help improve relationships between urban, suburban and rural parts of the state.

Actions

- In partnership with other local jurisdictions, the City should press for accelerated adoption of a strong national climate policy that includes re-engagement with the community of nations in the global campaign for climate protection.
- The City should actively promote strong climate protection policies and programs at the regional and state levels, based on the following principles:
 - The State of Washington should adopt explicit greenhouse gas reduction goals and timetables. The goals should include a long term target consistent with the scientific need for climate



stabilization and near term targets consistent with the strongest state goals being developed in the Northeast and West Coast states. Several states have set targets and timelines. In the Northeast, seven states have joined a Regional Greenhouse Gas Initiative that includes a cap and trade program for global warming pollution. California recently announced a series of ambitious measures including limits on vehicle and power sector emissions and Oregon is developing similar initiatives. Most important, limits on greenhouse gas emissions are essential in order to create a favorable environment for investments in solutions – and given federal inaction, that must occur at the state level. A strong state policy will position Washington for success in the clean energy economies of the future.

- The State, in collaboration with municipal, business and community leaders, should develop or participate in a flexible, market based system of tradable allowances among major emitters. GHG limits send powerful economic signals that encourage investment and technology development in energy efficiency and alternatives to fossil fuel use. Such a system should include a mechanism that provides accounting for emitters who want to earn credit for being "early adopters."
- The State, with local regulatory bodies, should set targets and incentives for energy utilities to steadily increase investments in energy conservation and renewable resources. For a number of reasons, not all energy utilities optimize energy efficiency and renewables in their resource portfolios. For example, coal power appears artificially cheap because the cost of global warming pollution is not yet included in the price of coal. To reduce our dependence on fossil fuels, energy providers need clear and consistent policies favoring long term investment in efficiency and renewable resources.
- The State and all levels of government should include a life cycle analysis of greenhouse gas impacts in all major planning initiatives and capital improvement projects. Throughout the state, long term policies and decision making are occurring

regarding growth and transportation without accounting for the potential contributions to – or impacts of – global warming pollution. For example, decisions on major transportation infrastructure improvements, such as the Alaskan Way Viaduct and the two Lake Washington bridges, must closely consider the climate impacts of investment alternatives. Similarly, the Puget Sound Regional Council distributes about \$160 million annually to projects that support its transportation plan, Destination 2030. These funding decisions and priorities need to acknowledge climate change and address the best approach to reduce greenhouse gas emissions. Our region and Washington state need policies that accommodate economic growth but minimize GHG emissions through efficiency – but to achieve this, decision makers need to assess and incorporate GHG emissions as a standard feature of the planning process.

- It's imperative that state and regional funding for transportation alternatives increase. A higher percentage of transportation funding through mechanisms such as the Regional Transportation Investment District (RTID) and the state gas tax should be used to support transportation choices such as transit, light rail more efficient vehicles and clean fuels.
- The City should continue and strengthen its partnership with the U.S. Conference of Mayors, ICLEI – Local Governments for Sustainability, and others to expand and strengthen the national coalition participating in the U.S. Mayors Climate Protection Agreement. Specifically, the City should share the Commission's recommendations with all participating cities, and identify those that can be replicated or jointly implemented in other U.S. cities. For example, cities working together can accelerate markets for climate-friendly products such as plug-in hybrid vehicles and heat-pump hot water heaters through joint purchasing agreements or advocacy campaigns.
- The City should partner closely with the Puget Sound Clean Air Agency to promote climate protection awareness and action in communities throughout King, Pierce, Snohomish and Kitsap counties.



Sustain our Commitment

We've recommended actions and policies. We've recommended partnerships and implementation plans. We've emphasized that we all share responsibility for current levels of climate pollution in Seattle – business, industry, residents, public institutions and the City of Seattle itself – and so rightfully we all share responsibility for the climate solutions recommended here. But essential to achieving the Kyoto target is actual implementation - and essential to successful implementation are adequate resources and a commitment to monitor and measure progress and make course corrections as needed.

Recommendation #17 Direct More Resources to the Challenge

There is no question that meeting the Kyoto Protocol target, and sustaining the effort to meet our long-term climate protection goals, will require significant funding. Some of the recommendations in this report are fully or partially funded. For example, Seattle City Light and Puget Sound Energy provide some financial incentives for energy conservation and the Seattle Department of Transportation has a small budget to improve pedestrian and bicycle infrastructure. However, many of these recommendations are under-funded or not funded at all. Our region's investment in public transportation is perhaps the most obvious example. Meeting the goal of the Seattle Transit Plan - to promote sustainable development in urban villages connected by transit service, at least every 15 minutes, 18 hours-a-day, seven days-a-week – will require an annual additional transit service investment of \$57-\$73 million.

For those recommendations in this report that produce revenue, such as implementing a road pricing system and a commercial parking tax, the Commission recommends that some or all of the funds be dedicated to funding those or other climate solutions.

Other cities tackling global warming pollution have created dedicated funding sources for innovative climate solutions; Seattle must take this step, as well. For example, Toronto created the \$23 million Toronto Atmospheric Fund in 1991, using proceeds from a land sale. The Fund grants or loans about \$1 million a year to the city, charities and public institutions for everything from energy conservation and urban forest restoration projects to public education and research initiatives.

Actions

- The City should include funding for climate protection, including implementation of these recommendations, in its 2007-08 budget.
- Support for transportation-related climate solutions should be included in the transportation funding ballot measure now under development.
- The Mayor should appoint a Climate Funding Task Force to develop specific recommendations for financing implementation of these recommendations and other climate solutions by September 2006.
- The Task Force should be led by the City, but should include experts from Seattle's financial, foundation and fund-development sectors. The Task Force's examination should include, but not be limited to, the following funding ideas considered by the Green Ribbon Commission:
 - Create a Climate Protection Fund similar to either the Toronto Atmospheric Fund or Portland's Green Investment Fund.
 - Create a public-private partnership to develop, finance and implement no- or low-carbon urban redevelopment projects, similar to the London Climate Change Agency.
 - Develop a program in which utility customers can make voluntary contributions to a Climate Protection Fund, perhaps

expanding on Seattle City Light's existing Green Power and Green Up programs.

- Increase the utility tax, or earmark existing utility tax revenues, to create a Climate Protection Fund.
- Ask Seattle voters to support the Climate Protection Fund through a levy in November 2006 or 2007, perhaps bundling climate protection, transportation infrastructure, and urban forest restoration needs.

Recommendation #18 Monitor and Report on Progress

As the saying goes, what gets measured gets managed. It is critical that progress in reducing greenhouse gas emissions be measured regularly along with regular reporting back to the community on these climate protection actions.

Actions

- The City should develop a system to monitor and report on progress in implementing these recommendations and reducing global warming pollution. This should include updating the greenhouse gas emissions inventory, and producing a progress report and action plan update, every three years.
- The City should develop a mechanism for community stakeholder input and oversight of the climate protection initiative, either by assigning this responsibility to an existing commission or advisory group, or by creating a new one.
- The City and the Clean Air Agency should collaborate on an approach to compiling and analyzing emissions data so that Seattle's progress can be measured against the region's progress.

We are recommending several different indicators by which to measure progress. The primary indicator of progress should be whether Seattle's contributions to global warming pollution are on track to meet the target because, ultimately, only absolute reductions in emissions ensure a sustainable future.

For Seattle, achieving the Kyoto target is a particularly bold goal because, consistent with the state's growth management rules, the city's growth and increased density help reduce sprawl in the surrounding communities – but that same growth also means more energy use and increased emissions within Seattle's own boundaries. Recognizing that dilemma, the Commission is recommending the following additional indicators to measure our community's progress in reducing Seattle's contributions to global warming pollution.

- Avoided GHG emissions from Seattle's recycling program.
- Emissions from City government operations and facilities.
- Per capita residential energy use in Seattle (natural gas and electricity use).
- Percentage of trips made using modes of transportation other than single occupancy vehicles.
- Vehicle miles traveled in Seattle, according to the Puget Sound Regional Council, in 2012 all the cars and trucks driving in and around Seattle are projected to add up to 11.2 million miles a day.
- Progress in increasing density as measured by the percentage of people who live in pedestrian and transit-oriented neighborhoods.



Beyond Kyoto and 2012

Meeting the pollution-cutting targets of the Kyoto Protocol is proving challenging in many of the countries that have committed to doing so – and it will challenge our community, as well. At the same time, we know that those targets are well short of what we need to do to stabilize the climate. According to the Pew Center on Global Climate Change, “. . . Most experts and governments believe that much steeper emission reductions, 60 percent or greater, will ultimately be needed to avert serious climate change impacts.”

For this reason, we applaud and strongly support the long-term goals for reducing global warming pollution embraced by dozens of municipal leaders, including Mayor Nickels, who attended the international climate talks in Montreal last December. Those leaders issued a Municipal Leaders Declaration calling for 30 percent reductions in greenhouse gas emissions by 2020, and 80 percent reductions by 2050.

This will require major shifts, not mere tweaks, in the way we develop our cities, power our homes and businesses, and transport ourselves and our goods and services from place to place. In the famous words of Albert Einstein, “We cannot solve our problems with the same thinking we used when we created them.”

To meet the longer term challenge, Seattle will need to embrace the next generation of more energy efficient technologies. During our year-long deliberations, we considered a number of actions that hold great promise for the future but that require more development, and are more likely to produce emissions reductions beyond the Kyoto timeline of 2012. Given rapid changes in technology and heightened awareness of the need for solutions, we believe the economics for these actions will change quickly. We urge that all those involved in carrying forward recommendations –

the City of Seattle and all those who live and work and do business here – do their part to support further research and development of actions such as these:

- 1. On-site solar energy systems.** These are likely to become increasingly available and affordable. A one-kilowatt rooftop installation in Seattle’s climate could produce about 1,000 kilowatt-hours per year – about 10 percent of what an average Seattle home uses. Installation costs – estimated at \$8,000 to \$12,000 – are the primary barrier to achieving the full potential for solar in Seattle. However, recent advancements, including new state legislation and federal tax credits offering substantial financial incentives to consumers to install solar photovoltaic systems, and major investments in solar energy in California and other places, are likely to bring down costs.
- 2. Heat pump water heaters (HPWH).** These are substantially more energy efficient than even the most efficient conventional electric or gas water heaters. Compared to conventional electric hot water heaters, HPWH use about 65 percent less electricity; compared to top rated gas hot water tanks, they save more than 50 percent of the energy used. In the past, the technology has not been considered reliable, but today the barriers are primarily economic in nature. Prices will fall as demand increases and a national distribution network is established.
- 3. More efficient power supplies in consumer electronics.** To operate, electronic devices need to convert AC power to DC power. Typically, internal power supplies in computers waste about 30 to 40 percent of all the energy that passes through them. More efficient power supplies are already available and are cost effective – a regional or national market transformation project could improve internal power supplies to 80 percent efficiency, while also improving performance. A regional or national market transformation project could rapidly accelerate the use of more efficient power supplies.



4. Pay as You Drive Auto Insurance (PAYD). PAYD has great potential to reduce vehicle miles traveled (and the associated global warming pollution) by sending a strong price signal to drivers that the more they drive, the higher their insurance bill. PAYD prorates premiums by annual mileage while including existing rating factors. Based on experience to date, PAYD will reduce participating drivers' annual mileage by 10 percent. PAYD already is available in Israel, the Netherlands, and South Africa. And there are two pilot projects underway here in the US, one in Texas and one right in the Puget Sound region, a partnership between King County, the City of Seattle, and Northwest Environment Watch.

5. Plug-in Hybrid Electric Vehicles (PHEVs). PHEVs use existing technology — today's gas-electric hybrid technology combined with larger batteries that provide an all-electric operating range of 25 to 35 miles or more. The result is an 80+ mile-per-gallon vehicle, with even greater fuel economy possible utilizing bio-fuels. These cars can be recharged by plugging into a standard wall socket, delivering "electric" gallons of gas for far less than the current cost of gas. Seattle is part of a growing national coalition, led by the City of Austin, to pressing auto manufacturers to produce these cars.

While the City and community implements the recommendations for near-term action featured in this report, we must at the same time continue to track these types of new technologies as well as best practices in other governments and companies around the world. We must continue to be a laboratory for innovation. And we must continue to work together with other communities, and with our state and federal counterparts, to bolster demand and create much-needed markets for clean technologies and climate solutions.

Mayor Nickels' Green Ribbon Commission on Climate Protection

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